

AMENDMENT UNDER 37 C.F.R. § 1.111  
Application No. 10/617,822  
Atty Docket No.: Q71182

### **REMARKS**

The Office Action of October 5, 2004 has been received and its contents carefully considered.

Claims 1 to 20 are all the claims pending in the application.

The Examiner has indicated that claims 5 to 10 are allowable over the prior art

Claims 1 to 20 have been rejected under the second paragraph of 35 U.S.C. § 112 as indefinite.

The Examiner sets forth two reasons for this rejection. Applicants discuss each reason below.

(a) The Examiner states that the term “softly magnetic” in claims 1, 17 and 18 is a relative term which renders the claims indefinite.

The Examiner states that the term “softly” is not defined by the claims, and the specification does not provide a standard for ascertaining the requisite degree. The Examiner states that the term “soft magnetic” is an art recognized term. The Examiner states that it is not clear if the metes and bounds of “softly magnetic” and “soft magnetic” are the same.

In response, applicants submit that the term “softly magnetic” layer as used in the claims is the same as the “soft magnetic” layer that the Examiner indicates is an art recognized term. The present specification, at page 7, in Paragraph [0034], describes the function of the “softly magnetic” underlayer, and in Paragraph [0035] gives numerous examples of this material.

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The function described at page 7, paragraph [0034], is the same as the function of the “soft” magnetic layer of the prior art.

In view of the description in the specification, applicants submit that one of ordinary skill in the art would understand the meaning of the term “softly magnetic”. Applicants have amended the specification and claims throughout to employ the art recognized term “soft magnetic”.

(b) The Examiner states that the term “desirable” in claims 2 to 16 renders the claims indefinite. The Examiner states that the term “desirable” means “preferred”, but not necessarily “required”. The Examiner states that the recitations following “desirable” are not considered to be positively claimed.

In response, applicants have amended each of these claims to positively require the cited materials.

In addition to deleting the term “desirable” from these claims, applicants have also deleted “should have” from the claims where this term appears.

In view of the above, applicants submit that claims 1 to 20 comply with the requirements of the second paragraph of 35 U.S.C. § 112 and, accordingly, request withdrawal of this rejection.

Claims 1, 2 and 11 to 20 have been rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Patent 6,709,768 to Takahashi et al.

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Applicants submit that Takahashi et al do not disclose or suggest the subject matter of claims 1, 2 and 11 to 20 and, accordingly, request withdrawal of this rejection.

The present invention as set forth in claim 1 as amended above is directed to a magnetic recording medium having a nonmagnetic substrate on which is provided at least a soft magnetic under-film, an orientation control film that controls an orientation of a film directly above, a perpendicular magnetic recording film having an axis of easy magnetization oriented to be mainly perpendicular to the substrate, and a protective film, wherein the orientation control film has a material composition forming a C11<sub>b</sub> structure.

In other aspects, as set forth in dependent claims 17 and 18, the present invention is directed to a method of manufacturing the magnetic recording medium, and as set forth in dependent claims 19 and 20, the present invention is directed to a magnetic recording and reproduction apparatus that contains the magnetic recording medium.

The Examiner states that Takahashi et al disclose a perpendicular magnetic recording medium having a substrate, a soft magnetic layer, a NiTaZr intermediate layer (disclosed at column 6, lines 1 to 7 of Takahashi et al), a magnetic recording layer and a protective layer. The Examiner states that the NiTaZr intermediate layer of Takahashi et al corresponds to the NiTa alloy orientation control layer of the present claims. See claims 11 and 12 of the present application.

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Applicants first note that Takahashi et al not only disclose that the intermediate layer can be a NiTaZr layer, but also disclose that the intermediate layer can be a NiTa layer, at column 6, line 10. Takahashi et al further disclose that the intermediate layer can be a TiCr layer.

However, the intermediate layer of Takahashi et al does not correspond to the orientation control film recited in the present claims.

In particular, Takahashi et al disclose a perpendicular magnetic recording medium comprising a substrate, a soft magnetic layer, a non-magnetic intermediate or underlayer layer, of, for example, NiTaZr, a magnetic recording layer and a protective layer. The non-magnetic intermediate or underlayer of Takahashi et al has an hcp structure. See claim 2 of Takahashi et al.

The magnetic recording medium of the present invention, however, comprises a nonmagnetic substrate, a soft magnetic under-film, an orientation control film having a C11<sub>b</sub> structure, a magnetic recording film and a protective film. Of these components, the C11<sub>b</sub> structure of the orientation control film of the present invention quite differs from the hcp structure of the intermediate layer of Takahashi et al. In particular, an hcp structure refers to a hexagonal close packed structure, whereas a C11<sub>b</sub> structure refers to a body-centered tetragonal structure.

Applicants enclose herewith, for the Examiner's reference, an explanatory view showing the two structures (C11<sub>b</sub> structure and hcp structure), from which one can readily understand the difference between them.

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Therefore, the Examiner's contention that the intermediate layer of NiTaZr of Takahashi et al corresponds to the orientation control film of a C11<sub>b</sub> structure of the present claims, such as a NiTa alloy with a C11<sub>b</sub> structure, is not correct.

Accordingly, applicants submit that Takahashi et al do not anticipate claims 1, 2 and 11 to 20.

In view of the above, applicants submit that Takahashi et al do not disclose or suggest the subject matter of claims 1, 2 and 11 to 20 and, accordingly, request withdrawal of this rejection.

Claims 1 to 4 and 13 to 18 have been rejected under 35 U.S.C. § 102(b) as anticipated by JP 1-263910.

Applicants submit that JP 1-263910 does not disclose or suggest the subject matter of claims 1 to 4 and 13 to 18 and, accordingly, request withdrawal of this rejection.

The Examiner states that JP '910 discloses a perpendicular magnetic recording medium having a substrate, a soft magnetic layer, a CuTi intermediate layer which corresponds to the CuTi orientation control layer of the present claims, a magnetic recording layer, and a protective overcoat. The Examiner refers to Table 5 on page 5 of JP '910, Figure 1 of JP '910, and to the English abstract of JP '910.

In response, applicants submit that there is no teaching or suggestion in JP '910 of an orientation control film having a C11<sub>b</sub> structure.

Accordingly, applicants submit that JP '910 does not anticipate the above claims.

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In view of the above, applicants submit that JP '910 does not disclose or suggest the subject matter of claims 1 to 4 and 13 to 18 and, accordingly, request withdrawal of this rejection.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

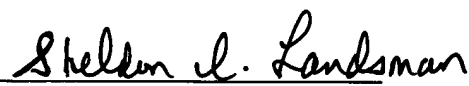
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**23373**

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